ABSTRACT

COMPACT CONSCIOUS ANIMAL
POSITRON EMISSION TOMOGRAPHY SCANNER

A method of serially transferring annihilation information in a compact positron emission tomography (PET) scanner includes generating a time signal for an event, generating an address signal representing a detecting channel, generating a detector channel signal including the time and address signals, and generating a composite signal including the channel signal and similarly generated signals. The composite signal includes events from detectors in a block and is serially output. An apparatus that serially transfers annihilation information from a block includes time signal generators for detectors in a block and an address and channel signal generator. The PET scanner includes a ring tomograph that mounts onto a portion of an animal, which includes opposing block pairs. Each of the blocks in a block pair includes a scintillator layer, detection array, front-end array, and a serial encoder. The serial encoder includes time signal generators and an address signal and channel signal generator.